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# An evaluation tool for design quality: PFI sheltered housing

Bob Giddings (corresponding author) <sup>1</sup>, Monika Sharma <sup>1</sup>, Paul Jones <sup>1</sup>,  
Phil Jensen <sup>2</sup>.

1. Department of Architecture, Engineering and Construction  
Northumbria University, Ellison Building, Newcastle upon Tyne,  
NE1 8ST

[bob.giddings@northumbria.ac.uk](mailto:bob.giddings@northumbria.ac.uk)  
[monika.sharma@northumbria.ac.uk](mailto:monika.sharma@northumbria.ac.uk)  
[paul.jones@northumbria.ac.uk](mailto:paul.jones@northumbria.ac.uk)

2. North Tyneside Homes, Quadrant West – 2<sup>nd</sup> Floor  
Silverlink North, Cobalt Business Park,  
North Tyneside, NE27 0BY

[phil.jensen@northtyneside.gov.uk](mailto:phil.jensen@northtyneside.gov.uk)

## Abstract

Development of the Architectural Design Quality Evaluation Tool was based on a live research project with a Metropolitan Council in the North of England. The aim was to improve the quality of design in residential sheltered housing, procured through the Private Finance Initiative; and has been applied to a programme that will see the replacement of the Council's entire sheltered housing stock. The Research Team worked alongside the Local Authority Project Team, and together they developed and refined the Tool through the competitive dialogue phase of the PFI programme. The Tool has two functions. It is a substantial part of the assessment process, which selected the preferred bidding consortium from the original six bidders, through a series of stages. However, it was also directed at improving the quality of all the submitted designs through an iterative process. There are several mechanisms available for evaluating the performance attributes of buildings and these are important, but few also tackle the less tangible amenity attributes, which are vital to the feeling of home. This Tool emphasises the amenity attributes without neglecting performance. Samples are illustrated in the paper but the complete Tool can be found on the Homes and Communities Agency website under Design and Sustainability at <http://www.homesandcommunities.co.uk/architecture-design-quality-evaluation-tool>

## Key Words

sheltered housing, architectural design quality, evaluation of design quality, private finance initiative, local authority, performance attributes, amenity attributes

## Introduction

When the British Conservative Government launched the Private Finance Initiative (PFI) in 1992, it had two principal objectives - to reduce public sector expenditure and to transfer risk to the private sector (Hughes et al., 2006). PFI is like no other type of building procurement, as private consortia bid to construct and operate facilities for up to 30 years. In 1999, the Labour Government introduced the Commission for Architecture and the Built Environment (CABE) as its adviser on Architecture. The Commission reviewed what it considered to be the largest public sector construction programme for a generation; and concluded that the vast majority of PFI buildings had not been designed to a sufficiently high standard. It affirmed that public sector service delivery had suffered as a result, and that qualitative improvement was urgently needed (CABE 2005). Among its proposals to generate this improvement were:

- appointing client design advisers
  - a design champion
  - independent adviser
  - users' group
- studying design exemplars
- undertaking post-occupancy evaluation

Within two years of the CABE report, a Treasury Taskforce (2007) published its technical note on how to achieve design quality in PFI projects. The stated aim was to assist public sector procurers to ensure the highest design quality solutions. It highlighted three areas for attention. The first was the management of the relationships with bidders, with the introduction of the competitive dialogue procedure. Secondly, was the provision of clear information about what is required and how bids will be evaluated; and thirdly, was the need to ensure that design proposals are consistent with the budget available for the project. The Government was seeking a much changed process; one which it hoped would answer the critics about the design quality of PFI projects. Arguably the biggest procedural change was in the management of relationships with bidders. The competitive dialogue procedure was introduced following an EU Directive (2004/18/EC) to enable contracting authorities to discuss all aspects of proposed contracts with the candidates. Such dialogue had not been possible under the previous restricted procedures. In principle, dialogue was to be allowed with consortia to identify and define solutions required by the authority; and may be conducted in successive stages with the aim of reducing the number of bidders. Under the new provisions, an authority could also discuss bidders' proposals for solutions, provided all bidders were treated equally (Office of Government Commerce 2006).

## The Project

An ageing population represents one of the most extraordinary social transformations that has characterised and will continue to characterise British society. The heightened hope of living longer and the increase in the number of elderly citizens represents a challenge for all local authorities. North Tyneside Council, a large metropolitan local authority in the north east of England, faces a particularly radical social change with housing stocks that are unlikely to meet future needs. Therefore the Council included in its strategic plan (North Tyneside Council 2007) provision to replace its existing sheltered housing schemes with 10 new build developments and 16 refurbishments. The intention was to increase both the quantity and quality of its provision. The Council concluded that the only feasible method of funding this huge transformation was through the Private Finance Initiative, and successfully applied to the Government for over £100 million of PFI credits. The imposed programme demanded intense activity (see Table 1); but from the beginning, the Council was keen to produce high quality buildings, and its first priority was to act on the recommendations of CAGE (2005) and the Treasury Taskforce (Office of Government Commerce 2007).

January – April 2010:	Stage 1 - assess sample outline proposals from six bidders; select three bidders for Stage 2
April – July 2010:	Stage 2 – assess sample detailed proposals from three bidders; select two bidders for Stage 3
July 2010 – January 2011:	Stage 3 – assess all detailed proposals from two bidders, ie 10 new build and 16 refurbishments; select preferred bidder
January – April 2011:	Evaluate full proposals from preferred bidder
April – July 2011:	Complete process, sign contract with preferred bidder
October 2011:	Start on site

Table 1 Original Programme

## **Appointing Client Design Advisers**

The role of the design champion is to articulate the vision and desire for high quality design; formulate the authority's aims and ensure they are clearly stated in the briefing documents; define, check and evaluate quality throughout the process; and insist that quality is maintained throughout the project (Office of Government Commerce 2007). The Council responded by appointing the Deputy Elected Mayor to the role; stating that its Design Champion will be committed to design quality in its broadest sense (North Tyneside Council 2007). It continued that good design is not an optional extra; it has to combine fitness for purpose with the building's whole-life costs, to deliver value for money. The Council approached the Architecture Group at Northumbria University to act as its independent adviser. It soon became apparent that a full-time researcher would be needed to work in the Local Authority Project Team. This was achieved through a Knowledge Transfer Partnership, in which the researcher was supervised by two members of staff from the Architecture Group. According to both CABI (2005) and the Office of Government Commerce (2007) users should be directly consulted. It is the generic nature of publications of this kind that they are not specific about who the users might be. Presumably this is because these publications are aimed at a range of building types. Yet, the inference is that a panel to represent different user groups (such as residents, staff, visitors) should be set up to gather information about user requirements as well as communicating progress. There are two principal arguments for user involvement in design decisions:

1. Without consultation, the decisions are more likely to produce unsuitable designs
2. This could lead to dissatisfaction and resentment if there is a clash with the aesthetic preferences of residents, even if the accommodation functions adequately (Halpern, 1995).

North Tyneside Council established a Users' Group comprising the Assistant Project Manager and Lead Communication Officer (from the authority), a Tenant Focus Group (8 members) from local authority sheltered homes in North Tyneside, representatives of the local community over 50 years of age (4 members), representative of North Tyneside Coalition for Disabled People, manager of the local Alzheimer Society, representative of the Coalition for Older People and a representative of the Primary Care Trust. In terms of including design criteria in the output specification, the Project Team organised three design workshops with the Users' Group. They were based around the themes of communal facilities, sustainability and internal details; and the objective was to elicit users' aspirations. The workshops considered a number of detailed issues. For example in workshop 1, the aspirations for communal spaces were established, and are almost totally reflected in the output specification checklist as CABI (2005) had proposed. Most could be classified under fitness for purpose but occasionally, in notions like focal points in lounges, there were signs of higher level attributes such as character.

## **Study of Design Exemplars and Undertaking Post-occupancy Evaluation**

The Project Team undertook the study of design exemplars, including the design-award winning Plas Y Mor (see Figure 1). The purpose of studying the design exemplars was to experience and reflect upon real high quality environments; especially in contrast to the Council's existing sheltered housing. It impressed upon the team, the importance of the amenity attributes and their full incorporation into any design assessment. The conclusion was that the overall feel of the environments – both inside and out, is created by the notion that the whole is greater than the sum of the parts. In terms of experiencing a completed development, such notions are significant. Nevertheless, evaluation and improvement of designs require analysis, which by its nature creates separation into components. This study generated the overall structure of the tool; the principal headings, ie: context, external spaces, building form, entrances, communal spaces, service spaces, circulation spaces, apartments, architectural components; and the definition of each category.



Figure 1 Plas Y Mor, Burry Port, Swansea, West Glamorgan

As part of its role as independent adviser, the Architecture Group at Northumbria University agreed to undertake a post-occupancy evaluation of the completed project in North Tyneside, at least one year after the tenants have moved in.

## **Management of the Competitive Dialogue Procedure**

The Local Authority Project Team established a programme of feedback meetings with the bidders, under the competitive dialogue procedure. The provision of clear information about the requirements was determined by the output specification, and the assessment of the factual components was set against a schedule. However, it was less clear as to how the designs would be evaluated; as well as their relationship with the budget. It was concluded that an architectural design evaluation tool would be required, through which changes in design could be viewed in terms of their cost implications.

## Assessment of Design Quality

A number of evaluation tools have been devised to assess design and build quality. Table 2 shows existing evaluation tools that could be applied to sheltered housing.

tool and who developed it	year started and building type	critique
<p>Housing Quality Indicators (HQI)</p> <p>The Housing Corporation, and inherited by the Homes and Communities Agency (HCA)</p>	<p>1996</p> <p>housing projects</p>	<p>Useful structuring for assessment and scoring scheme. Devised for general purpose housing and therefore does not map directly onto needs of sheltered housing. Responses in terms of <i>yes/no/not applicable</i> limits quality assessment, especially in the case of multi-part questions eg 2.2 <i>Are the buildings in context with local buildings, street, patterns (form, mass, detail and materials)? Enter not applicable for- surrounding local environment is of poor visual quality.</i> <a href="http://www.homesandcommunities.co.uk/hqi">http://www.homesandcommunities.co.uk/hqi</a> Following the establishment of the HCA, it inherited differing design standard requirements. In spring 2010, it consulted on a potential set of core future design and sustainability standards. In November 2010, the Housing Minister confirmed that the HCA would not progress these new standards, but would retain the existing ones. <a href="http://www.homesandcommunities.co.uk/ourwork/design-and-sustainability-standards">http://www.homesandcommunities.co.uk/ourwork/design-and-sustainability-standards</a></p>
<p>Sheffield Care Environmental Assessment Matrix (SCEAM)</p> <p>University of Sheffield</p>	<p>1999</p> <p>nursing homes</p>	<p>The objective of this tool is to systematically investigate relationships between the physical environment of nursing homes; and the quality of life of residents, and the job satisfaction and morale of care staff. Thus it is applied to buildings in use and not really applicable to the evaluation of design proposals (Parker et al., 2004).</p>
<p>Building for Life</p> <p>CABE</p>	<p>2001</p> <p>houses and neighbourhoods</p>	<p>Based on only 20 criteria and therefore generic issues. Only a proportion of the criteria are related to the actual design quality of proposals. Devised for general purpose housing and therefore does not map directly onto needs of sheltered housing</p> <p><a href="http://webarchive.nationalarchives.gov.uk/20110107165544/http://www.buildingforlife.org/criteria/">http://webarchive.nationalarchives.gov.uk/20110107165544/http://www.buildingforlife.org/criteria/</a></p>

Design Quality Indicator (DQI)  Construction Industry Council	2002  all building types	Originally created to assess completed buildings – later expanded to five phases including design. The calculation of scores is based on an aggregation of a set of individual opinions provided by various people (Eley, 2004) identified as stakeholders. The process involves a questionnaire and workshops. The 90 questionnaire statements are generic (to cover the range of building types) eg <i>the lighting is versatile for different user requirements</i> (CIC, 2003) which could be difficult to assess at design stage – especially by lay people. The explorative style of workshops during design assessments is inconsistent with the competitive dialogue procedure - in terms of specification of the contracting authority, confidentiality and equal treatment of bidders (HM Treasury, 2008).
Evaluation of Older People's Living Environment (EVOLVE)  University of Sheffield and University of Kent	2010  Sheltered housing and care homes	Established to assess occupied buildings but notes that it can be used to evaluate buildings at design stage. It is well structured in six sections. However, the assessment of design only relates to internal matters. There is a section on site and location, but it is restricted to access to local services. This is not especially useful as the sites will be pre-selected. Thus, there is not evaluation of context, external space and building form. Nevertheless, there are nearly 2000 questions for the remaining two thirds of the issues. In addition, the responses are – <i>yes/no/not in use/not applicable</i> – so it would be difficult to achieve assessments in terms of qualitative gradings for a number of schemes and several bidders in a competitive environment.  <a href="http://www.housinglin.org.uk/Topics/browse/Design/DesignGuides/?parent=6594&amp;child=7997">http://www.housinglin.org.uk/Topics/browse/Design/DesignGuides/?parent=6594&amp;child=7997</a>

Table 2 Existing Evaluation Tools

In addition, there are a number of tools that do not relate directly to the design quality of sheltered housing, but are widely used:

- Building Research Establishment Environmental Assessment Method (BREEAM) – assesses environmental and sustainability issues, 1990 <http://www.breeam.org/>
- Post-occupancy Review of Buildings and their Engineering (PROBE) – assesses the technical performance of commercial and public buildings, 1995 (Cohen et al., 2001)



- Design Excellence Evaluation Process (DEEP) for Defence Estates, 2003 [http://www.mod.uk/NR/rdonlyres/E9EA71D4-248F-4692-B2EC-7FAAA3147369/0/deep\\_summary.pdf](http://www.mod.uk/NR/rdonlyres/E9EA71D4-248F-4692-B2EC-7FAAA3147369/0/deep_summary.pdf)
- Design Quality Indicator for Schools, 2008 <http://www.dqi.org.uk/website/dqiforschools/default.aspa>
- Achieving Excellence Design Evaluation Toolkit, 2001 [http://www.shine-network.org.uk/?p=module\\_articles&aid=122](http://www.shine-network.org.uk/?p=module_articles&aid=122)
- USE tool for evaluating usability of workplaces, 2009 [http://www.metamorfose.ntnu.no/Artikler/w111\\_pub3301\\_Usability\\_Mapping\\_Tool\\_side17-29.pdf](http://www.metamorfose.ntnu.no/Artikler/w111_pub3301_Usability_Mapping_Tool_side17-29.pdf)

While the existing evaluation tools provide useful benchmarks, and some offer a means of structuring the evaluation - none are totally applicable in the context of PFI competitive bidding, including: competitive dialogue; raising the standard of all design proposals through an iterative process of

analysis, synthesis and appraisal; contributing to decisions as to which bidders should proceed to the next stage; and ultimately the selection of the preferred bidder. Nevertheless, the urgency of the PFI programme led to the inevitable conclusion that one of the existing tools would have to suffice. On 6 May 2010 both the General Election and Local Elections took place. The Elected Mayor of North Tyneside changed from Labour to Conservative. Immediately, the new Mayor halted all capital projects while a review took place. This was closely followed by the new Government's Comprehensive Spending Review. As the PFI project was unable to progress for several months, the opportunity was taken to develop an Architectural Design Evaluation Tool for Sheltered Housing.

## **Theoretical Perspective**

### **Accommodation for Older Persons**

Human needs can be viewed as a hierarchy (Maslow, 1954). At the base of the pyramid are physiological aspects. These include shelter, comfort, safety and security. On moving up the pyramid, the picture becomes more complex, as psychological needs are added. These involve belongingness, self-esteem, privacy and aesthetics at the apex. It is suggested that each lower need must be met before moving up to the next level. Yet, these issues should not be viewed as isolated events. For example, Altman (1976) discusses the interrelationship between privacy and belongingness. These qualities may be perceived as mutually exclusive but human beings actually need both at different times. Nezlek et al (2002) observe that the apparent contradiction in this polarised situation seems to increase as people become older. Altman (1975) introduces an interesting concept of individuals using a demand for privacy as a means of maintaining control over being overwhelmed by

numbers of people. In this proposition, he points out that crowding, rather than intensifying social interaction actually creates social isolation and privacy is used as an escape mechanism. So, it is vital to understand the differences between privacy and isolation, interaction and overcrowding. Dupuis and Thorns (1998) recognise the relationship between interaction and security. The desire for continued independence is a strong stimulus as people become older. Yet, there are associated risks and the provision of safety devices and procedures can be seen as both a safeguard and a threat. This highlights the need to achieve full consideration of security and surveillance versus freedom and openness, as well as privacy and refuge versus social interaction.

The elderly are more fearful than younger persons. Social support from the immediate community engenders belongingness, and has been shown to have significant positive effects on the self-esteem of residents. Research evidence suggests that casual social encounters are at least as important as formal social activities in terms of promoting a sense of community (Robertson et al, 2008). A sense of place exists where residents have a permanent feeling of belonging to somewhere of value. Distinctive environments give clues as to their location, use and meaning. They tend to reflect the local character of the area, in their form, architectural language and materials; aspects that are greatly appreciated by the ageing residents (Burton and Torrington, 2007). There is a need for the ease with which flat dwellers can make social connections, offer hospitality, create relationships within the development, enjoy privacy and undertake daily practical activities (Levitt, 2010). The design of internal space has to respond to regulatory requirements and functionality; and there is a considerable amount of design guidance available for such purposes. However, spatial design also needs to recognise people as individuals with their own requirements for dignity and autonomy. Therefore the layout of developments should maximise opportunities for the evolution of a community (Halpern, 1995). As well as communal spaces, circulation routes can provide places to sit and rest, and present possibilities to venture outside. Windows help orientation, and provide information about the layout of the building, the weather and time of day (Burton and Torrington, 2007). Thus, there is an important relationship between building attributes and quality of life. While security is essential, management of risk and loss of control that people have over their own lives, is a major challenge - one in which the design of safe environments should not compromise individual freedom (Burton and Torrington, 2007).

There is a growing recognition of the role of outdoor spaces in promoting quality of life and well-being for older people (Chalfont, 2005). The immediacy for the individual can be realised by balconies at upper levels, and small private gardens, directly outside the living accommodation at ground level. Both should benefit from sunlight at some time of the day. At the next scale, creating a sense of enclosed external space of appropriate height, scale and proportion – also benefiting from sunlight, offers group privacy for the residents. It should be visible from within the

building so as to offer defensible space in the Oscar Newman sense – as a feeling of enclosure is vital to its success (Levitt, 2010). The argument is that there should be as much freedom as possible for residents to walk inside and out, but the direct route should be to this safe environment; whereas there could be a less obvious route that leads to the public domain. The health benefits of experiencing the outdoor environment and engaging directly with nature, have been shown to be psychological as well as physical, relieving stress and improving mood (Burton and Torrington, 2007).

Interaction with the wider community in the surrounding neighbourhood can be enhanced by bringing shops, restaurants and leisure facilities into the development, provided the vulnerability of the residents is minimised through a clear public to private hierarchy of spaces (Evans, 2009). This provides for a more heterogeneous interpretation of community that encourages diversity of relationships.

### **Conceptual Framework**

The debate about measurement of design quality has a long history, and this is reflected in issues of Building Research and Information, especially from the era in which the Design Quality Indicator appeared as the first comprehensive system ‘to measure quality of design embodied in the product – buildings themselves’ (Gann et al., 2003). Markus (2003) notes that the contrast between the objective and the subjective is not as telling as many seem to assume. Indeed, he questions whether they are even the appropriate terms to use; and suggests that quantitative and qualitative may be more valid. Cook and Reichardt (1979) do not regard research as a choice between two extremes and consider it totally legitimate for an investigation or an appraisal to use a combination of quantitative and qualitative techniques. Yet, the importance of differentiating between performance and amenity goes back to Burt (1978); and any assessment of quality would benefit from an appropriate means of evaluating both performance and amenity, in addition to assessing their integration into the design as a whole (Giddings and Holness, 1996). This notion was supported by Manning (1991) who established the distinction between Environmental Quantities and Environmental Qualities; and by Thomas and Carroll (1984) who identified a continuum between Practicality and Originality. Exploration of all these attributes led to the development of a Quality Assessment Hierarchy. Although originally devised for use in design award schemes; as Gann et al. (2003) point out, it can equally well be applied to the quality of design proposals. Figure 2 represents a summary of the Quality Assessment Hierarchy.

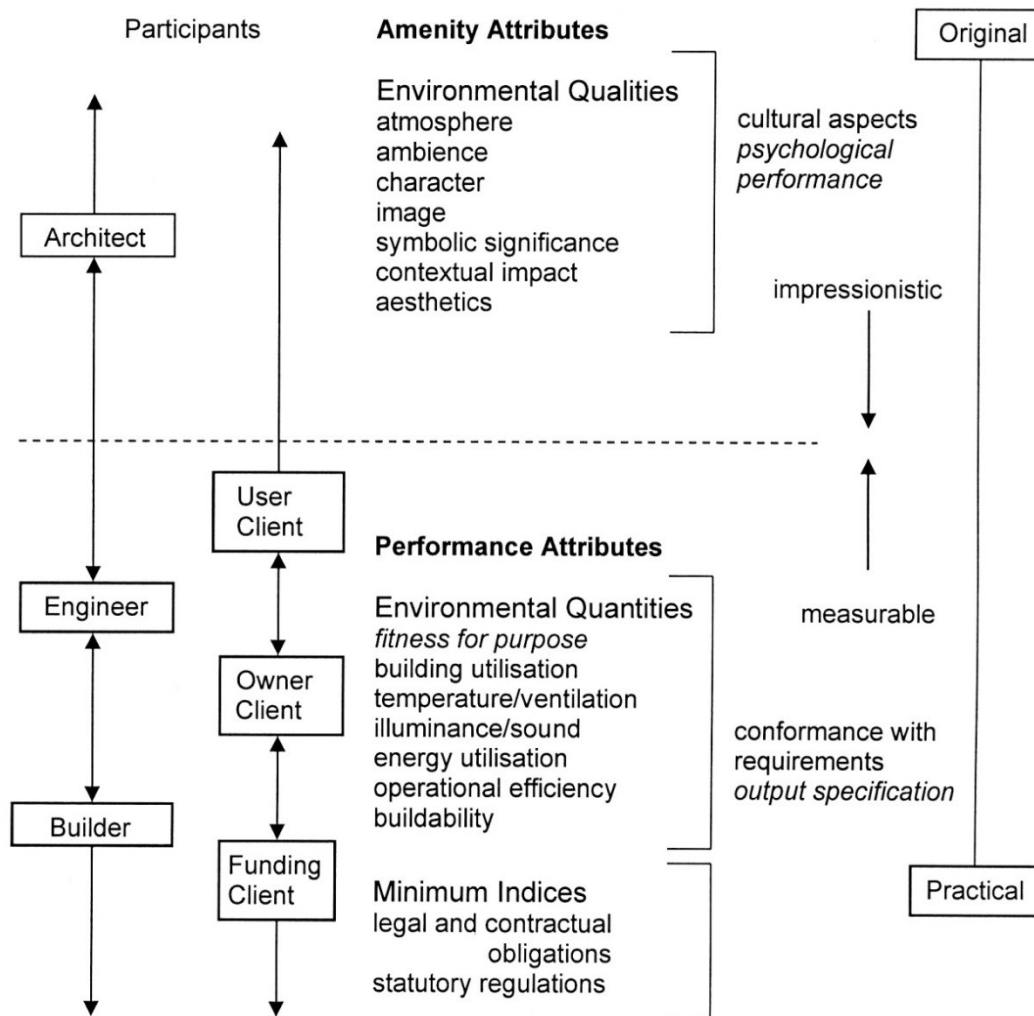


Figure 2 Quality Assessment Hierarchy (Giddings and Holness 1996)

## Development of the Tool

### Literature Review

The Royal Fine Arts Commission had been enquiring into building designs of public importance referred to it by Government Departments, since 1924. However, the New Labour Government from 1997 attacked what it perceived to be poor design quality in all aspects of the built environment and pledged a radical improvement – not least in the design of housing (Carmona, 2001). In 1999, it replaced the RFAC with a better resourced, more focussed adviser in the Commission for Architecture and the Built Environment (CABE). The literature on housing research is huge, and therefore a methodology was needed to filter and focus the references. It was therefore concluded that the literature search would be based on the publication of academic journal papers on the nature of home for older people, and the principles of design quality. The period from 1997 to 2011 was a period of unprecedented attention to design in the built environment. This stemmed from Government interest, the setting-up of CABE and the numerous design guidance publications.

120 academic journal papers were therefore consulted from this period. Stage 2 of the methodology was to determine which publications appeared most often in these papers; and therefore could be regarded as seminal works. It was these seminal works that formed the basis of the literature review for the formulation of the tool (see Table 3). It is recognised that selection has taken place in the choice of this literature. However, it is a selection that is representative of current research in the topic area.

Alexander 1977;1979;2002 Altman 1975;1976;1977a;1977b, 1985a;1985b;1991;1992; 1993;1994 Appleyard 1979 Barnes 2001;2002;2006 Benjamin 1995 Buttimer 1976;1980a;1980b Canter 1977;1983;1993 Chaudhury 2005 Day 1990;1998;2002;2004 Douglas 1980;1991;1998 Dovey 1978;1985;1990;2005 Duncan 1989;1992a;1992b;1993; 1996 Dupuis and Thorns 1996;1998 Feldman 1990;1993;1996 Gann 2001;2002;2003a;2003b Gesler 1991;1992;1993;1996;1998; 2009 Giuliani 1991;1993 Gurney 1990;1996;1997 Hanson J (2001) Hay 1998a;1998b Hayward 1975;1977 Heidegger 1962;1971;1993 Hertzberger 1998;2000 Lawrence 1987a ;1987b;1995;2002 Lawson 2001;2003;2005 Lawton 1975;1980;1985;1989; 1990;1994;1996;1997; 1998;1999;2000;2001	Low 1990;1992;1996 Macmillan 2003;2004;2005;2006 Marcus 1974;1976; 1995;1997;2006 Maslow 1943; 1954;1968 Moore 1991;1993;1995;1998;2000a; 2000b Newell 1992;1994;1995 Nezlek et al. 2002 Newman 1972;1973 Norberg-Schulz 1965;1971;1979;1980 Porteous1976;2001 Proshansky 1978;1983 Rapoport 1980;1981;1982;1990;1995; 1998;2005 Relph 1976;1981;1993;1996;1997;2000; 2008 Rowles 1983;2005a;2005b;2006 Salingaros 1995;1998;1999a; 1999b;2000 Saunders 1988;1989;1990a;1990b Seamon 1979;1980 Shumaker 1981 Sixsmith 1986; 1990;1991 Smith1994;2001 Somerville 1992;1994;1997 Thorns 1996;1998;1999 Tognoli 1982; 1987 Torrington 1996;2001;2004;2007 Tuan 1974;1977;1980 Ulrich 1983;1984;1991 Werner 1985;1986 Whyte 2001;2003a;2003b
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Full references are available in the Tool User Guide and in Sharma (2013)

Table 3 Seminal Publications referenced in the Tool

In addition, a review of reports and guides on design quality in homes and housing over the 1997-2011 period, provided performance data for the Tool, and these publications are listed in Table 4.

Association of Chief Police Officers Crime Prevention Initiatives (2004)  
     Secured by Design Principles  
 CAGE (2008) Delivering great places to live: Building For Life  
 CAGE (2009) Homes for our old age: Independent living by design  
 Care Services Improvement Network (2008) Design Principles for Extra  
     Care  
 Department of Justice (1994) 28 Code for Federal Regulation Part 36 ADA  
     Standards for Accessible Design  
 Design Principles for Extra Care (2008)  
 Goodman C (2011) Lifetime Homes Design Guide, IHSBRE press  
 Housing Corporation (2007) Design and quality standards, London, The  
     Housing Corporation  
 Housing Corporation (2008) Housing Quality Indicators  
 Littlefield D (2008) Metric Handbook: planning and design data, 3rd ed.,  
     London, Architectural Press  
 North Tyneside Council (2007) Housing Strategy 2006-2010  
 Thorpe S and Habinteg Housing Association (2006) Wheelchair Housing

Table 4 Reports and Design Guides referenced in the Tool

## Structure of the Tool

### Principles

The method of identifying desirable attributes, weighting them, assessing each attribute, and then combining the ratings to provide an overall evaluation – has its roots in utility theory and is used in a number of contexts. This approach is a sub-discipline of operations research and can be termed multi-criteria analysis (MCA). There is no normative model of how individuals should make multi-criteria choices that is without critics. The one that comes closest to universal acceptance is based on multi-attribute utility theory (MAUT) and is derived from the work of von Neumann and Morgenstern (1947) and Savage (1954). The main role of this technique is to handle large quantities of complex information in a consistent way. A key feature is its emphasis on the judgement of the decision-making team – in establishing objectives and criteria, assessing the relative importance of criteria through an explicit weighting system, and evaluating the contribution of responses to each criterion (Keeney and Raiffa, 1993; Brugha, 1998; Wallenius et al, 2008). The most common way to combine scores on criteria, is to calculate a simple weighted average. This means that the judged strength of preference for an option on one criterion will be independent of the judged strength of preference on another (Department of Communities and Local Government, 2009).

## Categories, Statements, Output Specifications and Criteria

The overall structure of the tool was based on the categories discovered during the study of design exemplars. The percentage allocation to each category (weighting within section) was determined by the Local Authority Project Team in consultation with the Users' Group (see Figure 3). It was decided that the percentages should vary between new build and refurbishment schemes, to reflect the scope of each approach. It was also recognised that in subsequent projects, the stakeholders may wish to re-allocate the percentages in accordance with their own priorities.



 North Tyneside Council	PFI Design Quality Evaluation Tool © North Tyneside Council & Northumbria University 2010 Version 2.0		 northumbria UNIVERSITY	
Bidder: ?????	Scheme: *****	Date	Ref: Bidder*****Feedback.NTC.PJ.V2	
New Build Scheme			Reviewers:	
Section	Heading	Weighting Within Section (New Build)	Weighting Within Section (Refurb)	Bidder Section Scores
Section C1	Context	7.00%	7.00%	0.00%
Section C2	External Spaces	14.00%	13.00%	0.00%
Section C3	Building Form	14.00%	10.00%	0.00%
Section C4	Entrances	10.00%	11.00%	0.00%
Section C5	Communal Spaces	17.00%	20.00%	0.00%
Section C6	Service Spaces	10.00%	12.00%	0.00%
Section C7	Circulation Spaces	10.00%	10.00%	0.00%
Section C8	Apartments	11.00%	10.00%	0.00%
Section C9	Architectural Components	7.00%	7.00%	0.00%
Total		100.00%	100.00%	0.00%

Figure 3 Cover sheet showing overall structure of the tool

The statements and criteria in the tool are drawn from a number of different sources. One of the starting points was the Output Specification, which was derived from the Council Housing Strategy, and the design workshops organised with the Users' Group. Some of the data came from deficiencies in the Council's existing sheltered housing. Another source was the study of exemplars. Literature such as Alexander (1977, 1979, 2002), Hertzberger (1998, 2000) etc., tended to offer strategic approaches and overarching principles; and these were useful in setting the general direction that led to specific criteria. Other tools such as DQI were analysed. Although they offered some useful perspectives, none of the criteria were taken directly from these tools – principally because they are not specifically directed at sheltered housing. The concepts of evaluation were taken from design literature. So, the tool has its roots in Architecture and Design; and Housing Research. The review of academic and practice literature generated 164 criteria, grouped by statements which were also derived from the literature. The statements appear under each of the category headings. The brief appears in the form of the Output Specification, which was derived from the Council Housing Strategy, and the design

workshops organised with the Users' Group. It is set out in a column on the tool, between the Category Statements and the Criteria for Assessment, as a reference, together with the assessors' confirmation that the issues have been achieved. There is not a standard number of statements for each heading, or number of criteria for each statement. The number of each was determined by the issues raised in the literature. The distillation of criteria for the complete tool was an extensive process (see BRI annex).

## **Scoring and Weighting**

One possibility for presenting schemes for evaluation is through the use of avatars – digital representation of people in simulated or virtual environments. Advances in these techniques are already occurring in a number of industries. However, there is a need to be cautious. Users can become mesmerised by computer generated images, and this effect can greatly diminish their critical faculties (Groak, 2001). In a recent independent study by Serginson et al (2012) on users' assessment of school design, it was concluded that the viewers' critical analysis was adversely affected by the nature of the virtual reality model and the sense of immersion using 3D glasses. Moreover, Eley (2004) states that evaluating the quality of a building design is not like assessing it in a marble, dinner plate or a car. Even automobiles are far simpler than buildings, with a high proportion of characteristics that are physically measurable. Although great care is taken with the vocabulary in assessment tools, it still belongs to the world of architecture, and users may find it somewhat alien. Also, they are not necessarily familiar with the range of issues on which it would be desirable for them to base their judgements. Of more importance to Markus (2003) are validity, reliability and consistency, and he agrees that often respondents are asked to judge something about which they have little knowledge. Therefore a small group comprising the Researcher and three members of the Project Team assessed all the schemes against the criteria. The Scoring Group members had taken part in the design workshops, so they had first-hand experience of the Users' Group's views on the various issues. They all have at least five years architectural education, so are well versed in the terminology (as recommended by Eley, 2004). All evaluations were carried out in strict accordance with the User Guide to ensure consistency. Two members of the Scoring Group together evaluated each scheme, and were then rotated for the next evaluation to avoid bias. The Scoring Group met with the Project Team and Design Champion at weekly intervals, and were required to explain each evaluation. The application of multi-attribute utility theory avoided a formulaic approach to the evaluation. The explanation of each criterion in the User Guide also significantly reduced the need for interpretation. Instead, the assessment relied for its consistency on the judgement of an informed group of assessors who were then required to justify their scores. They reported that the tool was user friendly and did not cause any difficulties in the assessment of the designs. The Tool was used for all 26 schemes, at three reviews with designs from two bidders. The quality of



design response to each criterion was measured on a 7 point Likert Scale (Miller and Salkind, 2002) as follows:

- 6 – Outstanding
- 5 - Excellent
- 4 - Very Good
- 3 - Good
- 2 - Average
- 1 - Minimal

-----  
0 – Criteria not met

In addition, the assessors were required to provide a written justification for each score.

From the beginning, the importance of the amenity attributes was emphasised. The presentations by the independent advisers' from Northumbria University at the inception of the project, , focussed almost entirely on amenity attributes, and were based around people and places. This follows the principle of the Quality Assessment Hierarchy in which performance cannot be neglected but criteria demonstrating greater amenity are weighted higher on a linear scale., ie 1-3 for performance attributes and 3-5 for amenity attributes (Sudha and Baboo, 2011).

Table 5 shows the categories, with the percentage allocations from the cover sheet (see Figure 3). The statement headings for each category are identified, together with the number of criteria for each statement. The mean weighting for the statements is also included. While the statements are generally a combination of performance and amenity criteria - nevertheless there is a tendency for service spaces, architectural components, entrances and circulation spaces to relate to performance attributes; while communal spaces, context and building form relate to amenity attributes. Apartments are positioned at the midpoint between the two.

<b>1.00 Context:</b> percentage allocation new build 7%, refurbishment 7%			
ref.	statement headings	number of criteria	mean weighting
1.01	sense of place	3	4.33
1.02	local pattern of development	4	4.25
1.03	local Landscape	1	4.00
1.04	integration	2	3.50

<b>2.00 External Space:</b> percentage allocation new build 14%, refurbishment 13%			
ref.	statement headings	number of criteria	mean weighting
2.01	landscaping	10	3.40
2.02	parking	6	2.33
2.03	boundary treatment	4	2.00

<b>3.00 Building Form:</b> percentage allocation new build 14%, refurbishment 10%			
ref.	statement headings	number of criteria	mean weighting
3.01	building scale	3	4.00
3.02	elevations	1	4.00
3.03	definition	1	5.00
3.04	variety	2	3.50
3.05	relationship with external space	2	4.00

<b>4.00 Entrances:</b> percentage allocation new build 10%, refurbishment 11%			
ref.	statement headings	number of criteria	mean weighting
4.01	positioning	3	2.66
4.02	definition and shelter	2	2.50
4.03	natural surveillance	4	2.50
4.04	internal character	2	3.50
4.05	hierarchy of space	2	2.50
4.06	other entrances	3	2.33

<b>5.00 Communal Spaces:</b> percentage allocation new build 17%, refurbishment 20%			
ref.	statement headings	number of criteria	mean weighting
<b>5.01</b>	<b>arrangement</b>	<b>3</b>	<b>3.00</b>
<b>5.02</b>	<b>communal lounges and subspaces</b>	<b>6</b>	<b>4.83</b>
<b>5.03</b>	<b>composition</b>	<b>4</b>	<b>4.50</b>
5.04	amenities	3	5.33
5.05	volumes	1	4.00
5.06	internal connections	1	4.00

<b>6.00 Service Spaces:</b> percentage allocation new build 10%, refurbishment 12%			
ref.	statement headings	number of criteria	mean weighting
6.01	laundry	5	1.60

6.02	buggy stores	5	1.20
6.03	bin stores	3	2.33
6.04	refuse strategy	5	3.00
6.05	plant rooms and service ducts	3	1.66
6.06	ancillary storage	2	1.50

**7.00 Circulation Spaces:** percentage allocation

new build 10%, refurbishment 10%

ref.	statement headings	number of criteria	mean weighting
7.01	corridors	7	3.14
7.02	lifts	4	2.75
7.03	staircases	4	2.75

**8.00 Apartments:** percentage allocation

new build 11%, refurbishment 10%

ref.	statement headings	number of criteria	mean weighting
8.01	number of apartments	2	2.00
8.02	layouts	2	3.00
8.03	use of space	3	3.00
8.04	adaptability	1	3.00
8.05	daylighting	2	3.50
8.06	acoustics	1	3.00
8.07	storage	2	2.50
8.08	apartment entrance	3	3.66

**9.00 Architectural Components:** percentage allocation

new build 7%, refurbishment 7%

ref.	statement headings	number of criteria	mean weighting
9.01	building envelope	3	2.00
9.02	external doors and windows	3	2.00
9.03	internal doors	3	2.00
9.04	internal walls	4	2.00
9.05	internal finishes	5	2.00
9.06	lifts	3	2.00
9.07	staircases	4	2.00
9.08	apartment fittings and equipment	3	2.00
9.09	communal fittings and equipment	3	2.00
9.10	external works	4	2.00
9.11	external lighting	2	2.00

Table 5 Summary of Categories (full set of criteria can be found on BRI Website)

Once all the criteria have been scored, each is multiplied by its weighting and the total weighted score for the category calculated. This figure is divided by the total weighted maximum for the category, and the quotient multiplied by the percentage allocation, as shown below. The resulting section scores from each category are then aggregated to find the total score for the scheme.

$$\frac{\text{total weighted score for each category}}{\text{total weighted maximum}} \times \% \text{ allocation}$$

= category contribution to total score

## Visualisation of the Results

The evaluation took place in three stages. The first stage was aimed at reducing the original six consortia to three bidders. The second stage reduced the number from three to two, and the objective of the third stage was to select the preferred bidder. At the final evaluation stage, ie selection of the preferred bidder, designs for all 26 schemes were produced. The Research and Project Teams concluded that, even at this late stage, there should be opportunity for the bidders to improve their designs through an iterative process resulting from a series of reviews. However, it should not be forgotten that both the revision of designs and the review process are very resource intensive in terms of time and money. The balance was struck at three reviews. Thus, there was output from 26 schemes x 3 reviews x 2 bidders = 156 results. It was concluded that the most effective way of presenting the results would be one graphical sheet per review – generating 156 sheets. Each review sheet needed an overview but also sufficient detail to enable bidders to target specific areas for improvement after Reviews 1 and 2. The top row of the sheet includes a spider diagram as a summary showing overall strengths and weaknesses. The score for each category is also shown in percentages, together with a build-up of the total score from the categories. The remainder of the sheet illustrates the nine categories with percentage scores for each statement (see Figure 4).

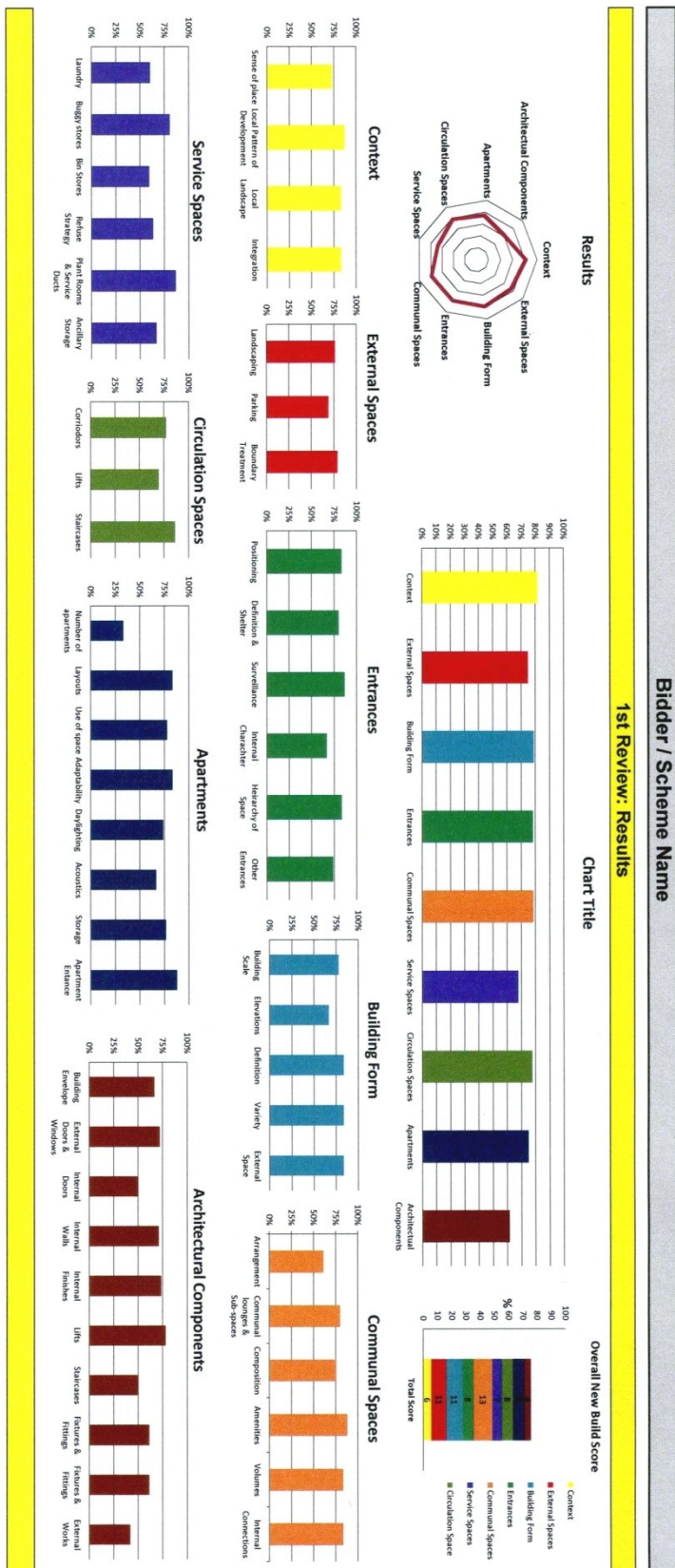


Figure 4 Results of Evaluation of Design for Crummock, Bidder S, Review 2

All the results from the final evaluation stage are summarized in Table 6.

## Summary of Results: New Build (in %tages)

Bisley		Bristol		Broadway		Chapelville		Clifton		Scheme
S	T	S	T	S	T	S	T	S	T	Bidder
59.1	42.8	59.5	57.1	52.8	60.6	63.4	56.2	77.6	65.3	Review 1
80.5	66.1	76.0	61.1	70.3	71.7	73.5	66.7	83.0	77.2	Review 2
80.7	70.3	78.4	66.3	72.2	73.8	74.0	68.5	83.7	80.6	Review 3

<b>Crummock</b>		Eldon		Marsden		Phoenix		Roseberry		Scheme
S	T	S	T	S	T	S	T	S	T	Bidder
66.0	62.5	74.5	59.3	61.1	51.4	55.6	57.5	58.4	38.5	Review 1
<b>76.3</b>	70.9	76.9	67.3	71.1	61.4	73.8	66.0	77.4	70.4	<b>Review 2</b>
76.6	72.5	79.2	69.1	72.2	62.5	74.2	71.3	77.6	72.4	Review 3

## Summary of Results: Refurbished (in %tages)

Carlton		Carville		Cheviot		Eccles		Scheme
S	T	S	T	S	T	S	T	Bidder
64.4	56.8	57.8	53.1	57.2	47.0	50.7	47.7	Review 1
75.9	62.2	74.2	69.4	74.8	61.3	76.8	60.5	Review 2
77.9	64.0	74.6	73.3	75.1	65.0	77.2	64.8	Review 3
36.7		33.5		36.1		20.6		Existing
41.2		41.1		39.0		56.6		Value Added

Emmerson		Feetham		Ferndene		Fernlea		Scheme
S	T	S	T	S	T	S	T	Bidder
50.7	50.6	62.5	51.9	50.1	47.6	61.0	57.3	Review 1
60.5	56.5	72.1	70.4	73.5	68.5	70.2	67.0	Review 2
61.9	59.5	73.7	72.3	78.0	75.3	70.8	67.7	Review 3
35.6		44.3		33.3		28.3		Existing
26.3		29.4		44.7		42.5		Value Added

Orchard		Preston		Rosebank		Rudyard		Scheme
S	T	S	T	S	T	S	T	Bidder
57.6	59.1	61.9	55.6	54.5	47.5	58.0	53.1	Review 1
67.3	61.7	73.0	66.9	70.5	60.1	72.6	56.5	Review 2
68.7	62.2	76.6	71.7	70.6	63.8	74.1	59.9	Review 3
28.2		41.9		30.4		45.6		Existing
40.5		34.7		40.2		28.5		Value Added

Skipsey		Southgate		Tamar		Victoria		Scheme
S	T	S	T	S	T	S	T	Bidder
58.2	48.5	58.6	66.1	64.6	42.9	61.7	65.3	Review 1
68.5	59.8	77.7	68.3	74.9	63.3	68.2	70.1	Review 2
69.4	61.2	78.2	68.7	77.1	64.5	69.4	70.6	Review 3
35.3		53.4		30.3		36.6		Existing
34.1		24.8		46.8		32.8		Value Added

Table 6 Results for all designs – Stage 3, Bidders S and T, three Reviews

## Analysis and Discussion

In new build and refurbishment proposals, both bidders received relatively low scores at Review 1, although Bidder S scored higher than Bidder T for virtually all schemes. The scores for the refurbishment schemes were consistently lower than the new build, by 2% - 5%. This may suggest that the bidders paid slightly more attention to the new build or that they had greater scope, but the differences are not particularly significant. In Review 1, the spread of results was greater for new build than refurbishment. In Reviews 2 and 3, there was no consistent pattern and little to choose between the spread of results, indicating that there is no bias towards either new build or refurbishment in the use of the tool.

The feedback from Review 1 seems to have been effective, as on average Bidder S improved their score by 20.9% for new build in Review 2, and Bidder T by 23.2% while the standard deviations reduced by 3.98 and 3.68 respectively. The improvement in the refurbishment schemes was similar as Bidder S improved their score by 23.8% and Bidder T by 20.3%. The standard deviations started from a narrower position and therefore the reductions were less dramatic at 0.32 and 1.85 respectively. The improvements from Review 2 to Review 3 were noticeably more modest. For new build the change was only 1.3% for Bidder S and 4.1% for Bidder T; with equally small changes in standard deviation (0.16 and 0.06). In the refurbishment projects the change was only 1.9% for Bidder S and again 4.1% for Bidder T. The standard deviation for both bidders actually increased by 0.21 and 0.22 respectively (see Table 7). The Review Team concluded that the introduction of two Reviews had been worthwhile as there had been significant improvements, but that Review 3 would probably be discontinued in future. The margins between the two bidders decreased with each successive Review for new build (14.0%, 11.8%, 8.8%) but did not follow the same pattern for the refurbishment projects (9.4%, 12.5%, 10.2%). The objective of raising the design standard of all schemes was achieved, but Bidder S maintained a clear advantage throughout all the Reviews. The notion of scoring the existing buildings and demonstrating the value added was adopted quite late in the process. The differences between the existing and proposed for Bidder S are shown on Table 7. The average increase in value was 106%. It was eventually realised by the Project and Research Teams that the potential of the tool could be enhanced if all existing buildings were to be scored at an early stage, similar to the DQI, as part of the decision-making on prioritising cases for redevelopment and refurbishment.

Reviews	Bidder S		Bidder T	
	mean	standard deviation	mean	standard deviation
New Build: 10 Schemes				
1	62.8%	7.92	55.1%	8.55
2	75.9%	3.94	67.9%	4.87
3	76.9%	3.78	70.7%	4.81
Refurbishment: 16 Schemes				
1	58.1%	4.65	53.1%	6.59
2	71.9%	4.33	63.9%	4.74
3	73.3%	4.54	66.5%	4.96

Table 7 Analysis of Results

The Project and Research Teams were confident that the Tool had provided both a means for improving the design quality of all the schemes and demonstrated which bidder offered higher quality design. However, Government Guidance (Treasury Task Force 2007) had stated any improvements in design quality needed to be affordable; and this formed an essential check at each design evaluation. There have been anecdotal assertions, especially in PFI projects, that an increase in design quality would render the projects unaffordable. The use of the Tool and the presentation of results from the Reviews, enabled Bidders to model specific design changes in relation to their effect on projected expenditure. Informal feedback from the Bidders made it clear that they had tested different options for particular design changes, against the model for the budget. The financial projections are shown alongside the budget on Figure 5. Contrary to unsubstantiated opinion (Evans and Hartwich, 2005), both bidders were within budget and followed a similar profile. Overall, Bidder S was more economical than Bidder T, through the tactic of accelerating the construction period by 12 months. Increasing the rate of construction emphasises the need to carefully monitor the build quality; and highlights a critical period when expenditure equals the budget. If Bidder S is selected as the preferred bidder, the Project Team will need to be very vigilant about these two issues during the construction period.



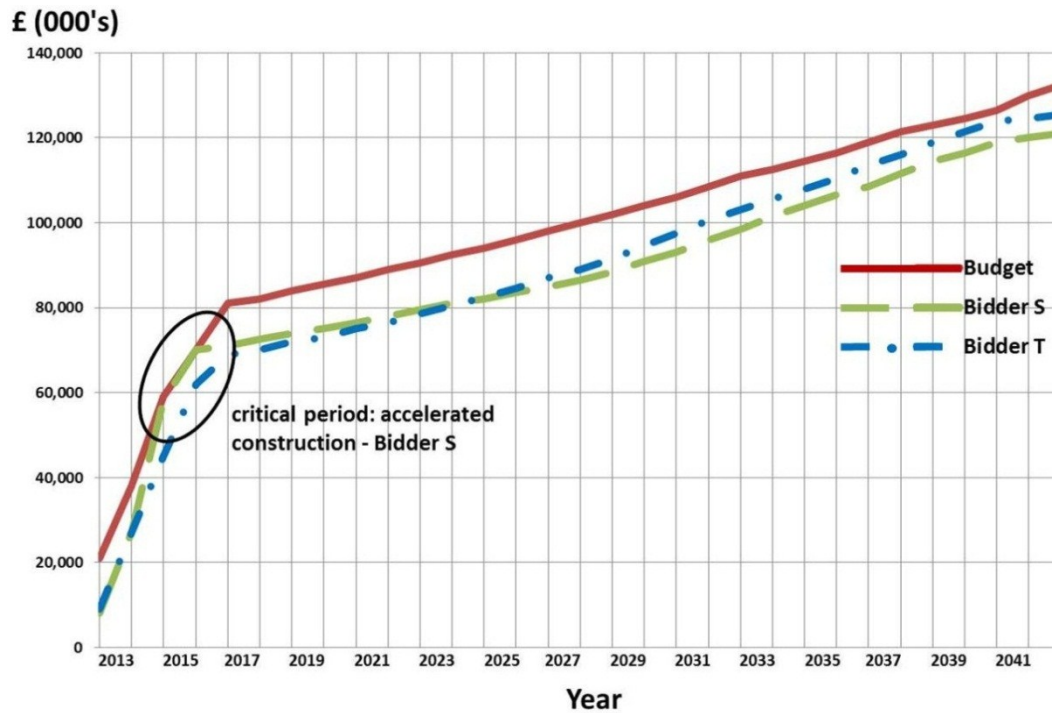


Figure 5 Financial Projections for Bidders S and T set against Budget

## Conclusions and Further Developments

This paper charts the introduction of a large scale PFI project into a metropolitan local authority in England; against a background of concern about design quality. It demonstrates how the Council followed the recommendations of government departments and advisers, to establish an appropriate organisational structure for managing the process. The establishment of a new competitive dialogue procedure was arguably the biggest change in relationships with the bidders and this was perceived by all parties as crucially important. However, it soon became clear that the deficiency in the process was how the designs would be evaluated. A review of existing evaluation tools revealed that they would not meet the specific requirements of the revised PFI procedure. Delays due to the Government's Spending Review enabled sufficient time for a new evaluation tool to be developed. The objectives were to inform the decision-making process in terms of selection of the preferred bidder, and to improve the design quality of all proposals. The tool was progressively applied to the selection stages and the results offered clear direction as to where the designs could be improved. It also quantified the improvements to the refurbishment schemes in comparison with the existing; and provided invaluable data to assist the selection of the preferred bidder. It is the view of the Research Team and the Project Team that the unsuccessful final bidder, at least, should be compensated for the time spent on the bidding process – which is extensive. The use of the tool does not really add to this time as the official design and procurement process states that it is an iterative form of analysis, synthesis and appraisal, in

which data, ideas and options can be rigorously evaluated at all stages, thereby informing and justifying the key decisions which will need to be made in a sequential pattern as the design develops (Treasury Taskforce, 2007). The Tool produced 156 evaluations from which clear patterns emerged. Nevertheless, the real outcome in relation to design quality will only be known when the post-occupancy evaluations are carried out in several years' time.

The Tool has been examined by the Homes and Communities Agency (HCA), the British Government's national housing and regeneration agency for England, whose the aim is to deliver high-quality housing that people can afford; and it is now included on the website at the following address, as an instrument setting new standards in design. <http://www.homesandcommunities.co.uk/architecture-design-quality-evaluation-tool> Discussions have taken place with RIBA Enterprises' National Building Specification (NBS) Team about the CREATE Specification Tool, which will be developed over 2013 to deal with briefing and design; and this will incorporate many of the ideas developed from the Tool and/or interoperate with the Tool itself. The work has been discussed with the International Council for Research and Innovation in Building and Construction (CIB) Working Commission W096 Architectural Management. An initial paper was presented at the World Congress, Salford in 2010 (Giddings et al, 2010), and there is an intention to present the results at the World Congress, Brisbane in 2013 (please see footnote). Following a presentation at the PPP/PFI Conference for Social Housing (London, September 2010), interest has been expressed by other English local authorities with early stage, large scale redevelopment proposals; and exploratory seminars have been undertaken. A condensed, simpler and more generic edition of the tool has been offered to MArch students at Northumbria University, to enable them to evaluate the development of their own studio design projects. A medium term objective is to identify the core of the Tool as a replicable standard for different building types. It was devised to suit the competitive dialogue phase of a PFI project, however it does not necessarily need to be limited to that form of procurement. The development of the tool with the National Building Specification team will undoubtedly require adaption to different building types and different forms of procurement. The favoured approach is a generic core with specific criteria tailored to the particular building types. As the life span of buildings is invariably longer than the planned life, and significantly influences the social and economic environment – increasing attention to definition, measurement and monitoring of quality should improve the ability to create environments that continue to offer commodity, firmness and delight (Slaughter, 2004).

Footnote: CIB World Congress 2013, WBC13, 5-9 May 2013, Brisbane Convention and Exhibition Centre, Queensland, Australia <http://worldbuildingcongress2013.com/>

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## Appendix

1.00 Context			
ref.	statement headings	criteria	
1.01	sense of place	1	General characteristics of building and surrounding spaces in relation to the local character of the area it is set in
		2	Landmark features, without being imposing or dominant
		3	Define public space in an attractive and user friendly manner.
1.02	local pattern of development	1	Responding to local patterns of development
		2	Height, proportions and materials are appropriate to the surroundings
		3	The ratio between the heights of buildings and the widths of streets are between 1:1 and 1:3
		4	Historic routes retained

1.03	local Landscape	1	Existing elements that give the site special identity are retained
1.04	integration	1	Safe and convenient to use
		2	Pleasurable and experience-enhancing journey by taking advantage of existing landmarks, views and vistas

<b>2.00 External Space</b>			
ref.	statement headings	criteria	
2.01	landscaping	1	Every area of external space has a clear use and maximises interest and enjoyment. Orientated to maximise daylight and shaded areas are provided where appropriate
		2	There is clear access to external space from internal communal areas and apartments where appropriate
		3	External spaces easy to maintain
		4	Residents have the opportunity of ownership
		5	Natural surveillance, discouraging blind spots. Casual surveillance from both communal areas and apartments. Avoid blank walls facing public space
		6	Hierarchy of spaces - clearly identified
		7	Appropriate variety of soft and hard landscaping
		8	Private gardens and patios (off the apartments) are clearly defined as being different to the communal gardens
		9	The design and access of external spaces maximise their use by residents with physical disabilities, visual and/or sensory impairment
		10	The choice of materials and detailing are durable and robust
2.02	parking	1	Integrated with overall landscaping scheme
		2	Close to the main entrance of the building
		3	Visual dominance of cars is minimised from both the external and internal spaces
		4	Natural surveillance achieved, plus lighting for way finding, safety and security
		5	Segregated and safe pedestrian access to the building entrance
		6	The approach and access for ambulance should be clear
2.03	boundary treatment	1	Appropriate scale relative to the building and surroundings



		2	Appropriate materials used which are attractive, durable and unobtrusive
		3	Consideration to be given to 'secure by design' principles
		4	Avoid creating a 'gated community'; the external space opens up to the wider community when appropriate and avoid prison/institutional aesthetics on boundary treatment

<b>3.00 Building Form</b>			
ref.	statement headings	criteria	
3.01	building scale	1	The building elements express human scale
		2	The building form is broken up into smaller units to give an association of home
		3	The massing of the building form is a coherent composition.
3.02	elevations	1	Particular attention given to colour, material, texture and patterns with regard to surrounding buildings.
3.03	definition	1	External treatment should reflect what is inside the building e.g. to distinguish between communal spaces and apartments from the outside.
3.04	variety	1	Do not create confusion; complex but not complicated, simple but not simplistic
		2	Uniformity of building design has been avoided
3.05	relationship with external space	1	Buildings define external areas and avoid creating incidental negative spaces. Facilities respond to features & opportunities of the site
		2	The scheme acknowledges the size, shape and topography of the site

<b>4.00 Entrances</b>			
ref.	statement headings	criteria	
4.01	positioning	1	Location of the main entrance in relationship to the site entry
		2	The main entrance is obvious from entering the site
		3	The building entrance is legible as a consequence of its size, shape, form and use of materials

4.02	definition and shelter	1	Orientation of the main entrance provides shelter against prevailing winds
		2	Provision of an appropriate sized draft lobby
4.03	natural surveillance	1	Position of the manager's office overlooking the main entrance
		2	Manager's office sized appropriately, demonstrating room layout
		3	Provision of windows for casual observation onto the building entrance
		4	Access control strategy incorporated into the main entrance
4.04	internal character	1	Welcoming and domestic in scale and volume
		2	Non-institutional in its treatment
4.05	hierarchy of space	1	Internal direction is clear/ legible and limits the requirement for internal signage
		2	Level of security clearly demonstrated between public and private areas
4.06	other entrances	1	Graded level of security
		2	The appearance and location of each entrance / exit is explicit to its purpose and importance
		3	Fire exits are only used in event of emergency

<b>5.00 Communal Spaces</b>			
ref.	statement headings	criteria	
5.01	arrangement	1	Grouping of the communal spaces as an overall strategy
		2	Travel distance between apartments and communal spaces are minimised in line with output specification
		3	There is access to external spaces whilst maintaining security
5.02	communal lounges and subspaces	1	Ratio of users to communal space. Total of lounge areas are a minimum of 2m <sup>2</sup> per apartment and appropriately distributed throughout the scheme
		2	A variety of lounge spaces for different types of activity provided, eg quiet and active
		3	The communal lounges and subspaces are sufficiently adaptable for change of use and user capacity
		4	A sufficient number and size of communal subspaces are provided

		5	Communal space and subspaces are logically arranged
		6	There is sufficient and appropriately located storage arrangements
5.03	composition	1	Varied volumes are offered to create spatial variety
		2	Communal spaces maximise views, natural light and solar gain
		3	Communal spaces encourage local community integration, and use by family and friends
		4	Focal points such as fireplaces or attractive bays windows are incorporated into the design of the communal spaces
5.04	amenities	1	Grouping of activities within the building and the reflection of these activities to the external
		2	Encourage local community integration
		3	Realistic assessment of adaptable change of use specific to each space
5.05	volumes	1	Major communal interior spaces are reflected in the reading of the external form
5.06	internal connections	1	Views provided to enhance visual connection between other communal spaces

<b>6.00 Service Spaces</b>			
ref.	statement headings	criteria	
6.01	laundry	1	Location in terms of accessibility , use and security
		2	Appropriate size of laundry room
		3	Travel distances should not be excessive
		4	Connection to a secure outdoor drying space and location in relation to the overall external space
		5	Appropriately sized outdoor drying space. The layout demonstrates permanent fixings and capacity of drying line
6.02	buggy stores	1	Near the main entrance and has a clear access strategy
		2	Security strategies are appropriate: external access to buggy store, and progression into the building
		3	An appropriate sized buggy store has been provided and adequate maneuverability of buggies demonstrated. Easily adaptable to

			future needs
		4	Charging points for buggies are well distributed within the buggy store
		5	Cycle storage provision is user-friendly, fit for purpose, accessible, durable and appearance is in keeping with scheme
6.03	bin stores	1	Internal refuse stores are located on external walls with vents to ensure efficient ventilation to minimise smell.
		2	Appropriate size of refuse stores has been provided for each floor to meet Councils Waste Management requirements. The capacity, number, area and maneuverability of bins are clearly demonstrated
		3	Travel distances to stores from apartments should not be excessive
6.04	refuse strategy	1	Refuse stores are segregated from social and communal spaces
		2	There is a designated route for removal of waste from internal stores to the external collection point; minimising travel distance from a suitable building exit
		3	The refuse storage has non-intrusive integration with the surrounding landscaping
		4	Approach and circulation for goods and refuse vehicles is clear and if possible is segregated from the public access
6.05	plant rooms and service ducts	1	External access for servicing, maintenance and deliveries which is segregated from internal areas
		2	The location of plant rooms and service ducts cause minimal disruption to residents, users and neighbours
		3	Provision of an appropriately located and sized communications room
6.06	ancillary storage	1	Provision of appropriate sized storage with fixtures and fittings where appropriate
		2	Location, size and distribution are useful to staff, but minimise adverse effects on the residents

7.00 Circulation Spaces			
ref.	statement headings	criteria	
7.01	corridors	1	Good daylight, solar gain and views within

			the circulation space
		2	Minimise length of circulation spaces and avoid dead ends
		3	Circulation spaces are designed to encourage informal activities other than just movement. Casual sitting areas that are useable, and not adjacent to sources of noise or invade on personal privacy of residents apartments
		4	Efficient provision of circulation space (provision of high ratio of usable area to gross built area)
		5	Design promotes a homely environment
		6	Clear circulation pattern and features to key access points and change in direction to aid orientation
		7	Use of decoration, artwork and view to create variety within the circulation spaces
7.02	lifts	1	Location of lifts do not have adverse effects on communal spaces, apartments and the overall comfort of residents in terms of mechanical noise and vibrations or noise from people gathered around lift
		2	Maintenance can be easily achieved without causing disturbance to residents
		3	Minimal travel distances from the lift to the apartment
		4	Relative number of lifts to users based on lift traffic analysis
7.03	staircases	1	Location of staircases do not have adverse effects on communal spaces, apartments and the overall comfort of residents in terms of noise from people on stairways is considered
		2	Minimal travel distances from the staircase to the apartment
		3	Purpose is defined, clear and easy to use
		4	Staircases engage with adjacent areas

## 8.00 Apartments

ref.	statement headings	criteria	
8.01	number of apartments	1	The overall number and size of apartments within the scheme meet or exceeds council requirements
		2	The number of 2 bed apartments meets council requirement. Percentage of 2 bed

			apartments to be stated
8.02	layouts	1	Individual apartments have simple layouts that is light and planned to make the most of the available space
		2	<p>The size and proportion of each apartment space meet practice standards for room areas and widths</p> <p>Living space - minimum internal floor area of for new build 1 and 2 bedroom apartments to be 16.5m<sup>2</sup> with a minimum width to be 3m</p> <p>Living space</p> <p>Kitchen - Minimum internal floor area of the kitchen for new build 1 and 2 bedroom apartments to be 7.5m<sup>2</sup> with a minimum clear maneuvering space - 1800mm x 1500mm.</p> <p>The main bedroom in each apartment is required to be large enough to accommodate a double bed or two single beds, as well as other standard bedroom furniture. Minimum internal floor area to be 14m<sup>2</sup> , with a minimum width to be 3m.</p> <p>The single bedroom (applicable to 2 bedroom apartments only) - large enough to accommodate a single bed, as well as other standard bedroom furniture. Minimum internal floor area of the second bedroom to be 7.5 m<sup>2</sup> with a minimum width to be 2.1m</p> <p>All New Build Schemes to accommodate a toilet, a washbasin, and level access shower, ceiling tracks and hoists within the assisted bath / shower rooms spanning between the bed in the double bedroom and the bathroom, assume point loads ranging from 375kg to 750kg.</p>
8.03	use of space	1	There is a clear sequence and progression between spaces. Direct access from lounge to hallway and kitchen is required
		2	Internal apartment doors are arranged for minimal walking distances between spaces
		3	Accessible for wheelchairs and use of walking frame, with appropriate turning circles
8.04	adaptability	1	There should be flexibility in the design of the second bedroom to have a multiplicity of uses e.g. an office, a library etc. Options should be shown for adaptability of bathrooms and kitchens.

8.05	daylighting	1	North facing apartments have been avoided.
		2	Day lit access has been provided to an external space
8.06	acoustics	1	Noise sensitive spaces such as bedrooms are not located adjacent to neighbours' living spaces, services and lifts
8.07	storage	1	There is built-in provision for storage within the apartment. Deep and inaccessible storage facilities have been avoided and ergonomically designed to suit older people
		2	Appropriately sized storage has been provided for general use
8.08	apartment entrance	1	Strategies to identify the entrance to individual apartments have been used, such as recessing the entrance to the apartment, reducing the linearity and monotony of circulation spaces
		2	Internal and external connectivity is maximised by the use of vision panels
		3	Finishes and décor provide a homely quality to the entrance area

9.00 Architectural Components			
ref.	statement headings	criteria	
9.01	building envelope	1	Structure, materials, finishes and technologies are robust and durable. Different types of junctions and their construction details have been treated to overcome defects
		2	Require low maintenance and cleaning
		3	Domestic in feeling and appearance
9.02	external doors and windows	1	Easy to operate, durable, and low maintenance
		2	Ergonomically designed for elderly people and those with physical disabilities and impairment
		3	Domestic in feeling and appearance
9.03	internal doors	1	Easy to operate, durable, and low maintenance
		2	Ergonomically designed for elderly people and those with physical disabilities and impairment
		3	Domestic in feeling and appearance
9.04	internal walls	1	Suitable for future adaptation of apartment
		2	Structure, materials, finishes and

			technologies are robust and durable and appropriate to use of area
		3	Domestic in feeling and appearance
		4	Resist sound transmission in sensitive locations
9.05	internal finishes	1	Domestic in feeling and appearance
		2	Easily maintained and durable
		3	Appropriate for physical and mental disabilities and visual impairments
		4	Comply with health and safety requirements
		5	Appropriate to each space in terms of appearance, quality, durability and maintenance
9.06	lifts	1	Domestic in feeling and appearance
		2	Materials and finishes are robust and durable
		3	Appropriate for physical and mental disabilities and visual impairments
9.07	staircases	1	Domestic in feeling and appearance
		2	Materials and finishes are robust and durable
		3	Appropriate for physical and mental disabilities and visual impairments
		4	Consideration given to minimise unutilised space (under stairs)
9.08	apartment fittings and equipment	1	Domestic in feeling and appearance
		2	Materials and finishes are robust and durable
		3	Appropriate for physical and mental disabilities and visual impairments
9.09	communal fittings and equipment	1	Domestic in feeling and appearance
		2	Materials and finishes are robust and durable
		3	Appropriate for physical and mental disabilities and visual impairments
9.10	external works	1	Homely and inviting in feeling and appearance
		2	Materials and finishes are durable and fit for purpose
		3	Appropriate for physical and mental disabilities and visual impairments
		4	Sufficient provision for residents and visitors
9.11	external lighting	1	Domestic in feeling and appearance where appropriate
		2	Selection of lighting suitable for use and location